

## WHAT IS CLAIMED IS:

## 1. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode, comprising: a storage means for an IP address of a private branch exchange; and a sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in the private branch exchange; and

a private branch exchange having an Internet protocol (IP) and connected to the Internet through the communication mode, comprising: the storage means for a correlation between the IP address of the telephone and an internal line number depending upon the identification information; and a transmitting means for depending upon the correlation between the IP address and the internal line number, a control signal and a speech communication signal for an internal line telephone of the internal line number to an address specified by the IP address.

## 2. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode, comprising: a storage means for an IP address of a private branch exchange; and a sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in the private branch exchange;

a private branch exchange having an Internet protocol (IP) and connected to the Internet through the communication mode, comprising: the storage means for a correlation between the IP address of the

telephone and an internal line number depending upon the identification information; and a transmitting means for depending upon the correlation between the IP address and the internal line number, a control signal and a speech communication signal for an internal line telephone of the internal line number to an address specified by the IP address ; and

an internal line telephone corresponding to the internal line number includes posting means for posting a message in that a control is switched over to the telephone having an Internet protocol (IP) and capable of being connected to the Internet, and the private branch exchange posts the switching by the posting means of the internal line telephone at a time of switching to the telephone on the Internet.

3. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode, comprising: a storage means for an IP address of a private branch exchange; and a sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in the private branch exchange;

a private branch exchange having an Internet protocol (IP) and connected to the Internet through the communication mode, comprising: the storage means for a correlation between the IP address of the telephone and an internal line number depending upon the identification information; and a transmitting means for depending upon the correlation between the IP address and the internal line number, a control signal and a speech communication signal for an internal line telephone of the internal line number to an address specified by the IP address; and

the private branch exchange further includes a receiving means for authentication information transmitted with the switching request from the telephone connected to the Internet, and authenticating whether or not the switching request is acceptable depending upon the identification information.

4. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode, comprising: a storage means for an IP address of a private branch exchange; and a sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in the private branch exchange;

a private branch exchange having an Internet protocol (IP) and connected to the Internet through the communication mode, comprising: the storage means for a correlation between the IP address of the telephone and an internal line number depending upon the identification information; and a transmitting means for depending upon the correlation between the IP address and the internal line number, a control signal and a speech communication signal for an internal line telephone of the internal line number to an address specified by the IP address ;

an encrypting means for encrypting a control signal and a speech communication signal exchanged between the private branch exchange and the telephone; and

a decrypting means for decrypting the encrypted control signal and speech communication signal.

5. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode, comprising: a storage means for an IP address of a private branch exchange; and a sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in the private branch exchange;

a private branch exchange having an Internet protocol (IP) and connected to the Internet through the communication mode, comprising: the storage means for a correlation between the IP address of the telephone and an internal line number depending upon the identification information; and a transmitting means for depending upon the correlation between the IP address and the internal line number, a control signal and a speech communication signal for an internal line telephone of the internal line number to an address specified by the IP address; and further comprising:

a plurality of the private branch exchanges accommodating the internal line telephone and or the telephones on the Internet; wherein the telephone on the Internet includes means for specifying identification information of the internal line telephone accommodated in the plurality of private branch exchanges, and requesting switching of the appropriate private branch exchange.

#### 6. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode, comprising: a storage means for an IP address of a private branch exchange; and a sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in

the private branch exchange;

a private branch exchange having an Internet protocol (IP) and connected to the Internet through the communication mode, comprising: the storage means for a correlation between the IP address of the telephone and an internal line number depending upon the identification information; and a transmitting means for depending upon the correlation between the IP address and the internal line number, a control signal and a speech communication signal for an internal line telephone of the internal line number to an address specified by the IP address ;

an internal line telephone corresponding to the internal line number includes posting means for posting a message in that a control is switched over to the telephone on the Internet,

the private branch exchange posts the switching by the posting means of the internal line telephone at a time of switching to the telephone on the Internet; and a receiving means for authentication information transmitted with the switching request from the telephone connected to the Internet, and authenticating whether or not the switching request is acceptable depending upon the identification information.

7. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode, comprising: a storage means for an IP address of a private branch exchange; and a sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in the private branch exchange;

a private branch exchange having an Internet protocol (IP) and

connected to the Internet through the communication mode, comprising:  
 the storage means for a correlation between the IP address of the  
 telephone and an internal line number depending upon the identification  
 information; and a transmitting means for depending upon the  
 correlation between the IP address and the internal line number, a  
 control signal and a speech communication signal for an internal line  
 telephone of the internal line number to an address specified by the IP  
 address ;

an internal line telephone corresponding to the internal line  
 number includes posting means for posting a message in that a control is  
 switched over to the telephone on the Internet,

the private branch exchange posts the switching by the posting  
 means of the internal line telephone at a time of switching to the  
 telephone on the Internet;

an encrypting means for encrypting a control signal and a speech  
 communication signal exchanged between the private branch exchange  
 and the telephone; and

a decrypting means for decrypting the encrypted control signal and  
 speech communication signal.

8. An internal line control system, wherein a telephone having  
 an Internet protocol (IP) and capable of being connected to the Internet  
 through the communication mode, comprising:

a storage means for an IP address of a private branch exchange;  
 and

a sending means for a switching request to the IP address of the  
 private branch exchange while specifying identification information of an  
 internal line telephone of which switching is requested, accommodated in  
 the private branch exchange, and

a private branch exchange having an Internet protocol (IP) and

connected to the Internet through the communication mode, comprising:

the storage means for a correlation between the IP address of the telephone and an internal line number depending upon the identification information; and

15 a transmitting means for depending upon the correlation between the IP address and the internal line number, a control signal and a speech communication signal for an internal line telephone of the internal line number to an address specified by the IP address ;

an internal line telephone corresponding to the internal line number includes posting means for posting a message in that a control is switched over to the telephone on the Internet,

the private branch exchange posts the switching by the posting means of the internal line telephone at a time of switching to the telephone on the Internet; and

25 the private branch exchange further includes a receiving means for authentication information transmitted with the switching request from the telephone connected to the Internet, and authenticating whether or not the switching request is acceptable depending upon the identification information.

#### 9. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode, comprising: a storage means for an IP address of a private branch exchange; and  
5 a sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in the private branch exchange;

a private branch exchange having an Internet protocol (IP) and  
10 connected to the Internet through the communication mode, comprising:

the storage means for a correlation between the IP address of the telephone and an internal line number depending upon the identification information; and a transmitting means for depending upon the correlation between the IP address and the internal line number, a control signal and a speech communication signal for an internal line telephone of the internal line number to an address specified by the IP address ;

an internal line telephone corresponding to the internal line number includes posting means for posting a message in that a control is switched over to the telephone on the Internet,

the private branch exchange posts the switching by the posting means of the internal line telephone at a time of switching to the telephone on the Internet; a receiving means for authentication information transmitted with the switching request from the telephone connected to the Internet, and authenticating whether or not the switching request is acceptable depending upon the identification information;

an encrypting means for encrypting a control signal and a speech communication signal exchanged between the private branch exchange and the telephone; and

a decrypting means for decrypting the encrypted control signal and speech communication signal.

#### 10. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode, comprising: a storage means for an IP address of a private branch exchange; and a sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in



the private branch exchange;

10 a private branch exchange having an Internet protocol (IP) and  
connected to the Internet through the communication mode, comprising:  
the storage means for a correlation between the IP address of the  
telephone and an internal line number depending upon the identification  
information; and a transmitting means for depending upon the  
15 correlation between the IP address and the internal line number, a  
control signal and a speech communication signal for an internal line  
telephone of the internal line number to an address specified by the IP  
address ;

20 an internal line telephone corresponding to the internal line  
number includes posting means for posting a message in that a control is  
switched over to the telephone on the Internet,

the private branch exchange posts the switching by the posting  
means of the internal line telephone at a time of switching to the  
telephone on the Internet; an encrypting means for encrypting a control  
signal and a speech communication signal exchanged between the  
25 private branch exchange and the telephone;

a decrypting means for decrypting the encrypted control signal and  
speech communication signal; and further comprising

30 an encrypting means for encrypting a control signal and a speech  
communication signal exchanged between the private branch exchange  
and the telephone; and

a decrypting means for decrypting the encrypted control signal and  
speech communication signal.

11. An internal line control system, wherein

a telephone having an Internet protocol (IP) and capable of being  
connected to the Internet through the communication mode, comprising:  
a storage means for an IP address of a private branch exchange; and a

5 sending means for a switching request to the IP address of the private branch exchange while specifying identification information of an internal line telephone of which switching is requested, accommodated in the private branch exchange;

10 a private branch exchange having an Internet protocol (IP) and connected to the Internet through the communication mode, comprising: the storage means for a correlation between the IP address of the telephone and an internal line number depending upon the identification information; and a transmitting means for depending upon the correlation between the IP address and the internal line number, a control signal and a speech communication signal for an internal line telephone of the internal line number to an address specified by the IP address;

15 a plurality of the private branch exchanges accommodating the internal line telephone and or the telephones on the Internet; wherein the telephone on the Internet includes means for specifying identification information of the internal line telephone accommodated in the plurality of private branch exchanges, and requesting switching of the appropriate private branch exchange

20 the plurality of private branch exchanges accommodating the internal line telephone, wherein IP addresses of the plurality of private branch exchanges are stored in a server on the Internet, and the telephone having an Internet protocol (IP) and capable of being connected to the Internet through the communication mode and/or the internal line telephone obtain(s) from the server the IP address of the private branch exchange when requesting switching.

25 12. The internal line control system according to claim 1 or 2, wherein a computer having the function of transmitting/receiving sound is used as a substitute for the telephone on the Internet.

a 13. The internal line control system according to <sup>claim 1</sup> ~~any one of~~  
a ~~claims 1 to 11~~, wherein the private branch exchange accepting the  
switching request from the telephone includes means for posting, when  
the internal line telephone is in use, a message to this effect to the  
5 telephone requesting the switching.

a 14. The internal line control system according to <sup>claim 1</sup> ~~any one of~~  
a ~~claims 1 to 11~~, wherein an own IP address of the telephone is stored in a  
server on the Internet instead of the telephone, and the telephone obtains  
the own IP address from the server when presenting the switching  
request.

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